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ABSTRACT

The meaning of children's lexical innovations is distinguished from the forms they rely on to convey meaning. Children require knowledge of the context in order to judge how the meaning of their innovation can be conveyed to the addressee. This contextualization is often achieved by default, since children tend to limit their early conversations to the here-and-now. Learning to assess what the addressee does and does not know is one factor children must attend to as they acquire the conventions of innovation. The word forms of lexical innovations seem to be acquired in a predictable order, with productive forms being mastered earlier. Children also attend to the semantic coherence of the new forms they are constructing, and regularize the lexical paradigms. This results in choosing, for instance, a single form for all agent nouns. Other principles also operate in the acquisition of the word formation rules for a language. (Author/JB)

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LEXICAL INNOVATIONS: HOW CHILDREN LEARN TO CREATE NEW WORDS

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As speakers, we often find ourselves in situations where there appears to be no word that is quite appropriate for the entity or event we wish to convey to a listener. At such times we have recourse to coinage and create new lexical items from the lexical resources available in our language. And we create these new lexical items in just such a way that our listeners will be able to compute the intended meanings, readily and uniquely, on each occasion of use. Although it often goes unnoticed, the process of coining new words--new meanings expressed with forms that fit the word-formation paradigms of the language--is widespread in adult speech (e.g., Brekle, 1977; Clark & Clark, 1979; Downing, 1977; Gleitman & Gleitman, 1970). It is no less widespread in children's speech and, I will argue, serves the same function --that of filling lexical gaps. Moreover, in children's speech, coinages provide a window on the developmental process whereby children acquire both the adult conventions governing the creation of new meanings and the conventions on uses of the word-forms that carry those meanings. In the present paper, I shall consider both sides of this coin: the kinds of meanings young children create and the forms they employ for their expression.

To keep the two sides of the coin distinct, the paper is divided into two parts. In the first, I take up the why of children's lexical creativity-- why they create new meanings and the circumstances under which they do this. Under this heading I will consider the evidence that children's lexical innovations play the same role, communicatively, as the adults', and I will draw on illustrations from a variety of sources: diaries, vocabulary studies, and my own observational and experimental data, mainly from children aged between two and six. In the second part of the paper, I take up the how of children's lexical innovations--the forms they pick to express their new meanings during the early stages of acquisition. Under this heading I will look at the available evidence for a developmental sequence in the word-formational devices children rely on, and will back up observational data with some experimental data on the comprehension and elicitation of those word-forms acquired early in acquisition. Although I shall discuss meanings and forms separately, they clearly go hand-in-hand for both child and adult speakers of a language. However, the child's knowledge of the possibilities is limited on both sides and it is therefore worthwhile considering them, for the moment, as if they were acquired separately.

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Lexical Innovations

Lexical Gaps

The lexical inventories of languages differ and no language has words for every possible concept its speakers might want to talk about. The result is that the stock of vocabulary is constantly renewed through the acceptance of those newly coined meanings that are useful enough for large groups of speakers to take up and add to the idiomatic or well-established meanings already in the lexicon. Many innovations, of course, remain nonce uses--coinages that were quite interpretable on the occasion of their use but failed to retain a permanent place in the lexicon. But even the nonce uses of lexical innovations fill lexical gaps. They supply a meaning not otherwise expressed by any lexical items available to the speaker in question (cf. Lehrer, 1970; Lyons, 1977).

Lexical gaps may be momentary--as when someone has difficulty retrieving the right word form from memory--or chronic--where there is no word form that is conventionally used to express that particular meaning. In order to fill chronic gaps, there are three general conditions that must pertain. First, the exact meaning to be expressed must not be expressed by any other lexeme already in the lexicon. (This condition is violated in the case of momentary gaps, where the gap results from loss of memory or some retrieval difficulty that prevents the speaker from coming up with the form conventionally used for a particular meaning. Fromkin (1973) cites a number of speech errors where speakers constructed new word forms in lieu of those conventionally used.) Secondly, the new meaning has to be carried by an appropriate form, one that fits the word-formation rules of the language in question. And thirdly, the speaker and listener must jointly observe whatever conventions govern the use of such innovative meanings in such a way that the innovation will be readily understood as the speaker intends it on the occasion of its use.

These three general conditions on chronic gaps are so frequently met on an everyday basis that most of us do not even notice how often we process lexical innovations in the course of understanding utterances. As long as the utterance containing an innovation is interpretable in context, we tend to take it for granted. Only when we pause to reflect might we notice that we have just heard a new verb formed from a noun ("I've got to launderette those sheets," meaning 'take those sheets to be washed at the launderette'), a new noun compound ("Why don't you sit in the apple-juice-chair?", meaning 'the chair nearest the glass of apple-juice on the table'), or a new derived agentive noun ("Dare to be a juicer!", meaning 'a drinker of juice,' from an advertisement on a bottle of apple juice). These meanings are all novel in that they are not expressed by any well-established expressions already in the English lexicon. Despite their innovative status, each of them is easily interpreted in context.

Both adults and children, I claim, fill lexical gaps, but the process of filling gaps is in one case the same and in the other different for the two populations. Like adults, children may experience momentary gaps: when they have difficulty retrieving a known word form, they may construct a new one on the spot. Two examples from my data are the construction of sleeper (in lieu of bed) by a three-year-old, and the construction of pourer (in lieu of cup) by a four-year-old. These children knew the correct terms, but because of a passing difficulty in retrieving the "right" words, constructed alternatives. (These momentary forms are often corrected seconds later when the right word comes through.)

The process is different, however, for chronic gaps. Adults fill what are gaps in the adult lexicon: ideally, they work from what is already in the well-established vocabulary and only coin new words where there are discernible gaps that require filling on particular occasions, e.g., the verb to charcoal (meaning, make into charcoal, said of potatoes that boiled dry). Children, though, have not yet mastered the adult lexicon. What they know about it is not only fragmentary; it can change from day to day as they acquire additional well-established lexical items. As a result, they may fill many chronic gaps that are not gaps for adult speakers (e.g., to needle in lieu of mend, to nipple in lieu of nurse, a fixer in lieu of tool, a plant-man in lieu of gardener) in addition to those that are gaps for adults. One way to differentiate these two situations is to characterize the innovations adults produce as legitimate innovations: these fill true gaps in the (adult) lexicon where there are meanings to be expressed that lack any conventional (well-established) means for doing so. Children, in contrast, produce both legitimate and

illegitimate innovations. Their legitimate innovations fill true chronic gaps and could as well have been produced by adults, while their illegitimate ones fill what are currently gaps in the child's but not in the adult's lexicon.

Illegitimate innovations are illegitimate precisely because they are pre-empted for adult speakers by the existence of well-established lexical items with the requisite meanings. Illegitimate innovations, such as the verbs to needle and to broom, should therefore give way to the appropriate well-established terms, here to mend and to sweep, as soon as children acquire them. The criterion for legitimacy for children's innovations is simply the existence of a gap in the adult lexicon. For a child innovation to be illegitimate, then, it must coincide in meaning with some well-established lexical item that takes precedence or pre-empts that innovation.

Lexical innovations in adult speech are relatively easy to detect, although what's an innovation for one speaker may not be for another (Clark & Clark, 1979). In children's speech, detection should be rather more of a problem. First, their legitimate innovations may be under-estimated by the observer just because they conform or appear to conform to the adult conventions on innovation and will thus be less noticeable than illegitimate innovations. The latter by their very nature will be more noticeable and more likely to be noted in diary and vocabulary studies. Second, children's lexical creativity may be further under-estimated wherever their innovations happen to coincide with actual well-established forms. For example, a child might coin the agentive noun gardener from garden, meaning 'the person who usually works in the garden.' Such innovations will generally be indistinguishable from all the other well-established terms that children have picked up wholesale from the adult speakers around them. Re-creations, like gardener, coincident with well-established or conventional adult forms, will be virtually undetectable as innovations.

The hypothesis I am putting forward is that filling chronic lexical gaps provides the major motivation for both adult and child innovations in the lexicon. Adults have little reason to duplicate exactly meanings that are already expressed by well-established lexical items and indeed avoid doing so (e.g., Motsch, 1965; Bolinger, 1977). But filling a lexical gap, for adults, has an obvious communicative function: it allows a speaker to be more precise in conveying his intended meaning on a particular occasion where no well-established term is entirely adequate to the task.

What would constitute evidence for or against this hypothesis in the case of children's innovations? Evidence for such an hypothesis would be children's making up new words--new meanings--where they lacked other words to express their meanings, e.g., the agentive noun fix-man in the absence of mechanic. Such innovations should be more likely to occur in domains where children's vocabulary of available terms is relatively small, and the innovations they produce should contrast in meaning with the vocabulary items they have already acquired. On the other hand, it would be evidence against the hypothesis if children coined synonyms for meanings they had already acquired, and simply used innovations and well-established terms interchageably with no contrast in meaning.

In fact, there is considerable evidence for the hypothesis. First, even very young children treat words as if they contrast in meaning. Upon learning a new animal term like horse, for example, they will narrow the domain of a previously over-extended term, dog, in order to contrast it with the new term just acquired

(e.g., Clark, 1978). Moreover, there is evidence from the language acquisition of bilingual children that at one stage they will reject having two separate labels (from different languages) for the same entity and, for instance, will accept only one of dog and perro or of water and agua (e.g., Fantini, 1976). Children also seem to assume that any new words introduced to them by adults contrast with the known set they co-occur with. Thus, children introduced to the term chromium in the context of other color terms, took it to be a color term that contrasted with the ones they already knew (Carey, 1978); and, introduced to a novel (nonsense) word in the physical context of objects differing in either color or shape, children took it to encode a color in the one case, a shape in the other (Dockrell, 1979).

Secondly, more direct evidence for the hypothesis comes from children's lexical innovations. I will present illustrations from three domains: (1) children's coining of innovative denominal verbs, (2) their coining of names for subcategories, and (3) their coining of new agent and instrument nouns. In all three domains, as in most adult innovations, precision of communication appears to be what is at stake (e.g., Downing, 1977; Clark & Clark, 1979). To take the first domain of examples, why do children coin new verbs? Children are much slower in mastering well-established verb-meanings than they are in mastering noun-meanings (e.g., Clark, 1978; Gentner, 1978; Huttenlocher, 1979). As a result, they have few verbs available early on for talking about a large range of actions. To communicate about particular actions, many children take up the option of coining new verbs from nouns where the noun in question designates one of the objects involved in the particular action being talked about. Some typical examples of such denominal verbs from English-speaking children are listed in Table 1.

Table 1

Some Typical Examples of Innovative Denominal Verbs
(Based on Clark, in press)

1. S (2;4, wanting to have some cheese weighed): You have to scale it.
2. EB (2;8, after roaring with "claws" outstretched at a towel): I monstered that towel.
3. S (3:0, watching a truck pass): It's trucking.
4. S (3;2, putting on a cowboy hat, fastened with a bead-and-string): String me up, mommy.
5. CB (3,11, putting crackers in her soup): I'm crackering my soup.
6. JA (4;0, playing the role of a doctor dealing with a broken arm): We're gonna cast it.
7. ME (4;11, talking about Christmas trees): We already decorationed our tree.
8. JW (5;7, hitting a ball with a stick): I'm sticking it and that makes it go really fast.

Such verbs are also coined by young children acquiring other languages (see Clark, in press). The importance of such innovative verbs is that they allow small children--as young as two--to be very precise, in context, about the actions they are talking about.

Secondly, in labelling things, even very young children set up contrasts and will divide up known categories into subcategories. But since they lack well-established terms for each subcategory (and these may be lacking altogether in the language), they may opt to coin new compound nouns--combining two (or more) nouns with the appropriate stress pattern and modifier-head word order.[2] One child, for example, at 1;11 contrasted baby-bottle (a bottle used when she was a baby) with bottle alone (Leopold, 1949). Another, aged 2;0, distinguished fried from boiled eggs (her breakfast fare) with the expressions plate-egg and cup-egg. The same child distinguished dogs in general, dog, from a particular yellow dog found at the site of a local fire and subsequently given to a neighboring child, by use of the compound fire-dog, which she used frequently in requests for a similar pet (Pelsma, 1910). Other two-year-olds I have observed consistently contrasted subcategories by means of such compounds: one distinguished kinds of smoke such as house-smoke (from a chimney) versus car-smoke (exhaust), and another kept his T-shirts apart with the same device, with butterfly-shirt, for instance, for the one with a butterfly design on it. While I have listed only a few examples here, they are widespread both in the vocabulary and diary literature and in my own longitudinal records.

The third domain of innovations illustrated here is that of agent and instrument nouns. Young children will construct new compound nouns for these categories, e.g., the spontaneous fix-man (for a car mechanic), garden-man (for a gardener), or rat-man (for a man who worked with rats in a psychology laboratory, a colleague of the child's father)--all from two-year-olds. Moreover, children as young as two-and-a-half or three will coin such terms on demand. In an elicitation study, Barbara Hecht and I specified meanings-- describing what the agent or instrument did--and asked young children for a way of conveying those meanings. Examples typical of the agentive forms we elicited are shown in the top half of Table 2. The commonest type of compound noun children produced combined a noun or verb base as the first element with the noun -man in second place, as in fire-man and sweep-man. This type fits a common adult pattern for constructing agent nominals. These children sometimes marked the agent redundantly, adding an -er to the verb base in addition to combining it with the noun -man, as in hitter-man. This pattern is comparatively rare in adult English, and the occasional well-established form like fisherman seems an unlikely model for children this age to work from. Since the derivational ending -er marks instruments as well as agents in English, it could be that the children add -man to a verb + er form just to make quite clear they are designating an agent and not an instrument. (The older children tended to opt simply for the forms composed of a base + er to mark agents.) Some typical instrument nouns coined by the same children are shown in the bottom half of Table 2. The head nouns (in second place) were usually -thing or -machine, and they followed a verb base, a verb + ing, a verb + er, or a noun base.[3] Again, older children tended to opt for forms combining a noun or verb base with the derivational -er ending, just as for the agent nouns.

What is important, for all three domains illustrated here, is that these children lacked other words to express these innovative meanings. This is particularly clear in the case of diary and vocabulary records, but it was also the case for our experimentally elicited innovations. The children did not have other terms to express the meanings we offered since we deliberately chose meanings for

Table 2

Typical Agent and Instrument Nominals Elicited from Young Children

(Based on Clark & Hecht, in preparation)

A. Agent nominals: some compound forms produced by three-year-olds

1. fire-man = someone who burns things[a]
2. sweep-man = someone who sweeps things
3. smile-person = someone who smiles at people
4. hitter-man = someone who hits things
5. kicker-man = someone who kicks things
6. reader-man = someone who reads things
7. hider-man = someone who hides things

B. Instrument nominals: some compound forms produced by three- to five-year-olds

1. jumping-thing = thing for jumping with[a]
2. hugging-machine = thing for hugging people
3. eating-thing = thing for eating with
4. knock-thing = thing for knocking with
5. blow-machine = machine for blowing with
6. package-machine = machine for pushing things
7. rock-machine = machine for throwing things
8. kicker-machine = machine for kicking things

[a]The glosses represent the meanings given to the child for which the pertinent form was elicited.

which there was not any obvious English word. These data, then, offer strong preliminary support to the hypothesis that children, like adults, innovate in order to fill lexical gaps.

Contextual Innovations

Do children's innovations have any particular properties, apart from the variety of forms they draw on in their coinages? As the glosses in Table 2 suggest, the context is often, and maybe always, critical to the meaning being expressed. Without the gloss--here the meaning offered to the child for expression--there is no way to tell that the combination of fire and man in the compound fire-man on this occasion designated not someone who puts out fires (the well-established adult meaning of this form) but someone who sets fire to things. Equally, the meaning of rock-machine is not a transparent composition of the two constituent nouns, rock and machine. One has to know that on this occasion, the machine so designated was one that could throw rocks rather than grind them up, arrange them in lines, polish them, or the myriad other activities that could link rocks and machines. Without the context, utterances containing innovations like these are often uninterpretable. Although we supplied the meanings in these instances, this dependence on context is just as typical of children's spontaneous coinages as of those we elicited.

Elsewhere, I have characterized innovations like these--dependent on context on the occasion of their use for proper interpretation--as contexuals (Clark & Clark, 1979). They contrast with innovations whose interpretation can be computed from the composition of the constituent elements of the innovative expression alone. For instance, adjectives plus the ending -ness all have the meaning "quality of being X," as in smoothness, quickness, flashiness, etc., while most verb stems plus -able have the interpretation "possible to be X-ed," as in houseable, rideable, etc. (see Aronoff, 1976). The combination of ending plus base in such cases makes for a predictable meaning, a composition of the parts.

Contextuals, as a type of innovation, have the following properties: (1) they have an indefinitely large number of potential senses. An innovative denominal verb (like launderette), a compound noun (like apple-juice chair) or a derived noun (like juicer) could be used with one sense on occasion, another on another, and so on. This, I would argue, also appears typical of many child innovations. For example, one two-year-old I have been recording used the noun broom as a verb on one occasion to mean "hit with a broom" and on another to mean "sweep with a broom" (an illegitimate coinage given the existence of adult sweep). (2) Contextuals depend for their interpretation on the context in which they are produced. As a result, they bear a strong resemblance in many ways to indexicals or deictic terms such as he or there. This dependence on context is especially obvious when it comes to interpreting children's innovations: without contextual information, they are usually just as opaque as children's uses of deictics like that or general purpose verbs like do in the absence of contextual information. (3) Contextuals demand cooperation between the speaker and the listener in the following way: The speaker has to assess what the listener knows or could infer from the context, and the listener has to use clues from the context plus any other facts he could assume the speaker would expect him to use in arriving at the speaker's intended interpretation of the innovation. With children, such deliberate cooperation is usually lacking, but the fact that young children restrict much of their conversation to the here-and-how allows it by default. The adult listener can nearly always

rely on the context to provide clues to the child-speaker's meaning for an innovative term.

Among adults, speakers and listeners rely on conventions governing such innovations in order to arrive at the intended interpretations. These conventions spell out the conditions under which the speaker can expect the listener to arrive at a readily computable, unique interpretation on each particular occasion of use. This is done essentially by considering both the expression itself--in the examples given above: a denominal verb, a compound noun, or a derived noun--and the speaker's and listener's mutual knowledge in a particular context of use.

The adult convention on innovative denominal verbs takes the following form, where the first five conditions seem to be conditions that would apply to any contextual:

> The Innovative Denominal Verb Convention. In using an innovative denominal verb, the speaker means to denote:
>
> (1) the kind of situation
> (2) he has good reason to believe
> (3) that on this occasion the listener can readily compute
> (4) uniquely
> (5) on the basis of their mutual knowledge
> (6) such that the parent noun denotes one role in the situation and the remaining surface arguments of the denominal verb denote other roles in the situation
>
> (Clark & Clark, 1979, p. 787)

The sixth condition applies specifically to innovative denominal verbs, and the form of this condition would clearly change for each type of contextual-- denominal adjectives, compound nouns, derived agent and instrument nouns, and so on, to name just a few such categories in English. However, the first five conditions specify the general circumstances required for the appropriate interpretation of contextuals, specifying their dependence on mutual knowledge and context for ready computation of a unique meaning by the listener.

A convention of this type places constraints on what can be used as an innovation--in this instance, which nouns can be used as innovative denominal verbs. However, children do not yet observe these constraints and therefore produce a number of illegitimate innovations alongside their legitimate ones. A major constraint imposed by the denominal verb convention can be called the principle of pre-emption by synonymy. Innovations are pre-empted or accounted illegitimate if there is a common term already in the language with just the meaning the innovation was intended to have. For denominal verbs there are several subtypes of such pre-emption.

First, there is pre-emption by suppletion, where there already exists some other verb (morphologically unrelated to the parent noun of the potential innovation) with just the meaning the innovation would have supplied. For example, among vehicle terms in English, noun/verb pairs form a highly productive paradigm (taxi/to taxi, canoe/to canoe, helicopter/to helicopter, etc.) but there are

some striking exceptions. Neither car nor aeroplane fits the verb paradigm since, for adult speakers, the verbs drive and fly fill the respective meaning slots for these two vehicles. The verb drive is in a suppletive relation to the noun car since it pre-empts use of to car for the meaning "go by vehicle."

Suppletion accounts for the illegitimacy of one child example mentioned earlier, the verb broom. For adults, the noun broom is not a member of the noun/verb paradigm of instruments that can be exemplified by pairs like saw/to saw, hammer/to hammer, and so on. Broom is paired with to sweep, which pre-empts the use of broom as a verb with the meaning, 'clean with a broom.' Other examples of where children fail to use the adult suppletive forms are scale for weigh, nipple for nurse, gun for shoot, and axe for chop. Failure to use suppletion is a common source of illegitimate child innovations among denominal verbs (Clark, in press).

A second type of pre-emption by synonymy is pre-emption by entrenchment. Although one can form the verb to jail from the noun jail, one cannot use to prison, from prison, meaning 'to put into prison,' because of the existence in the langage of the verb imprison with just that meaning. And one can house someone (from the parent noun house) but not hospital someone ('put into a hospital') because of the prior existence of hospitalize. In all cases of entrenchment there is already in use a verb derived ultimately from the same parent noun, with just the meaning that would be carried by the proposed innovation. The verbs already entrenched in language, like imprison, enthrone, or hospitalize, take precedence over the innovations. Because children often lack the necessary adult knowledge of the lexicon, they produce illegitimate innovations of this type.

A third type of pre-emption by synonymy is pre-emption by ancestry. If the potential parent noun the speaker uses is itself derived from another noun or verb base, then that noun cannot normally become the parent of an innovative denominal verb. Consider the noun baker. This noun cannot give rise to a verb baker with the meaning 'do what a baker would do professionally' in the way butcher can give rise to to butcher, because the noun baker itself was originally derived from the verb to bake which has just the meaning in question. Equally, the noun farmer does not provide for to farmer because the meaning ('to do what a farmer would do professionally') is itself carried by the (denominal) verb to farm from which the noun farmer derives.[5] The morphological relations in cases of ancestry are usually transparent so it is normally clear that a particular noun is related by both meaning and form to a particular source. Children also produce illegitimate innovations of this type; for instance, they use a noun like decoration as the parent noun of a verb, to decoration--presumably because they do not know to decorate or fail to recognize the synonymy of to decorate and to decoration.

A second principle that seems to place constraints on innovations, although it does not seem to have such force as the avoidance of synonymy, is the principle of pre-emption by homonymy. This constraint covers coincidence of forms with difference of meanings. If a potential innovation coincides in form with a common verb, say, that has a quite different meaning, the innovation tends to be avoided. For example, although one can use all sorts of car names as verbs where that level of specificity is required ("He didn't VW to New York, he Chevied"), one would avoid saying He Forded to New York (meaning 'go by Ford car') because of the presence of the common verb to ford, meaning 'to cross by a ford.' Equally, to Dodge, meaning 'go by Dodge car,' is avoided because of to dodge, 'to evade pursuit.' And while season names like winter and summer occur as verbs, the

potential verbs spring and fall are pre-empted by the common verbs to fall ('let drop') and to spring ('to jump'). There seem to be relatively few instances of children's using illegitimate innovations of this type. However, one could perhaps consider here such uses as button ('turn on by pressing a button') pre-empted by adult button, 'fasten by means of a button'; key ('open with a key'), pre-empted by adult 'make a key for'; needle ('mend with a needle'), pre-empted by adult 'irritate'; and cement ('make cement'), pre-empted by adult 'put cement on.'

Since children produce numerous illegitimate innovations, both among their denominal verbs and in other categories of innovations, it is clear that, for them as for adult speakers, filling gaps is relative to what vocabulary one knows. The difference is that adults normally know a great deal more vocabulary--and hence the meanings conventionally available--in their language. This knowledge, in combination with the conventions on innovations, is what constrains the process of innovation. Young children, however, at first have only a limited vocabulary, and while they add to it steadily, both through the acquisition of well-established lexical items and through coinages, it takes them a long time to acquire the vocabulary that limits innovations. As a result, they produce both illegitimate and legitimate innovations, with the former only lessening in number as they acquire more vocabulary. This finding, observed first for children's denominal verbs (Clark, in press), also seems to hold for innovative nominals, both in the diary and vocabulary study data and in our experiments (Clark & Hecht, in preparation). Children produce a number of illegitimate innovations in lieu of the terms adult speakers would normally use. They also, of course, produce many quite legitimate innovative nominals--innovations that fill true gaps in the adult lexicon.

In summary, innovations drawn from three areas of the lexicon--denominal verbs, object nominals, and agent and instrument nominals--strongly suggest that children, like adults, coin new words in order to communicate more precisely what they mean. They are engaged in filling chronic lexical gaps. But innovations are constrained by the well-established lexicon, so the elimination of illegitimate innovations depends on children's acquisition of the pertinent well-established vocabulary, an acquisition that takes considerable time.

Constructing Lexical Forms

Once children have decided what meaning they want to express, they have to select a form appropriate to convey it. With well-established or idiomatic lexical items, meaning and form are already joined, in that knowing the one is inextricably linked to knowing the other. But with innovative meanings, children have to learn to select appropriate word forms for their expression from whatever stock they have available. The choice and construction of these word forms, and some of the principles that guide children's choices, are my second concern in this paper.

The first of the principles to be considered here--the one I shall focus on most--is what I will call the principle of productivity. This principle states that those word formation devices that are the most productive, relatively speaking, should be the most available to children, and should therefore be acquired earlier and used in preference to less productive devices. By productivity, I mean the degree to which a particular pattern of word formation may be used as a model for new lexical items (Adams, 1973; Aronoff, 1976). For example, in forming new agent nouns in English, the suffix -er is more productive than either -ist or -ian, so -er should be acquired earlier than the other two suffixes. The principle of productivity has as its corollary the following strategy for children forming new words:

S1: Look for the commonest device that expresses the desired meaning. Reliance on this strategy predicts that the forms children will acquire earliest will be those most readily available to them, namely those that are more productive. Children acquiring the same language will presumably pick up the same forms: initially these will probably be few in number, depending on the domains in which children coin new words. This prediction will be considered in light of some of the more productive word formation devices for coining certain types of new verbs and nouns in English, and in light of the types of word forms used by adults speaking to young children.

The second principle to be considered here, which interacts with productivity, is the principle of semantic coherence. This principle states that those word formation devices that mark their meaning clearly (i.e., with one-to-one matches of meaning and form) are simpler to acquire than those where multiple meanings are expressed by one form, or vice versa (see Slobin, 1973, 1977). This principle enjoins children to use as transparent a device as possible in constructing new word forms. This suggests that the principle has two attendant strategies:

S2: Look for devices that mark only one meaning.

and

S3: Look for devices that are words in their own right.

Reliance on the first strategy predicts, for instance, that in forming new agent nouns, suffixes like -ist and -ian should be acquired before -er because the -er form serves to express instrumental as well as agentive meaning. But this prediction goes counter to the one based on productivity. Which principle takes precedence? I will argue that productivity does. In fact, it is not clear that the prediction from S2 is testable in English since the elements that mark only one meaning, one could argue, are likely in English to be words in their own right. For example, the noun -man added to a noun or verb base marks agentive meaning and thus should be simpler to acquire than the suffix -er. But man is a word in its own right while -er isn't. So S3 really makes a more general prediction, that in acquisition, compounding, where the constituent elements are words, should be used before affixation. This prediction is quite compatible with the prediction based on productivity provided one assumes that children attend more to productivity as they acquire more vocabulary and see which lexical paradigms in the language express particular meanings.

A third principle that should play a role in word formation is the principle of regularization. This principle asserts that paradigms in language--the subsystems found in inflection and word formation--are regular in form (Clark & Clark, 1977). The attendant strategy here in forming new words is:

S4: Use the same device everywhere to mark the same meaning.

This strategy is essentially equivalent to Slobin's (1973) operating principle "Avoid exceptions" and is amply supported by the data on children's acquisition of inflectional systems. Reliance on this strategy, then, predicts that children will pick up on one device to mark a particular meaning and over-use it, much as they over-use -ed to mark past tense in English or -om to mark the instrumental case in Russian. This regularization of lexical paradigms will give way to a more diverse set of options only when children find out more about the word formation devices available in the language.

The predictions, then, can be summarized as follows: first, children should pick the more productive devices initially and use them in preference to less productive devices in the language. Second, in order to mark their meaning for new lexical items clearly, as far as possible, they should pick devices that are words in their own right. Thirdly, the devices they pick up first should be over-used and therefore result in over-regular lexical paradigms.

Critical to testing these predictions is the presence of innovative lexical items in children's speech. Idiomatic or well-established word forms could have been picked up wholesale from adult speakers, without any analysis of the structure, and thus cannot yield any insight into children's knowledge of word formation. It is only when children construct new forms for new meanings that one can impute to them knowledge of the word formation devices being utilized. Children's innovations have been recorded in numerous diary and vocabulary studies, and they can also be elicited in experimental settings. I will draw on both types of data in assessing the predictions that follow from the principles of productivity, semantic coherence, and regularization.

The data considered here are mainly production data--lexical innovations produced spontaneously or on demand from children aged between two and six. First, I draw on seven vocabulary studies of children up to age three (Bateman, 1915; Bohn, 1914; Boyd, 1915; Brandenburg, 1915; Grant, 1916; Nice, 1915; Pelsma, 1910). All their complex word forms were extracted and divided into two categories: (a) idiomatic (well-established) items that could have been acquired directly from adults, and (b) innovative terms constructed by the children. The latter were normally flagged by the authors as having special or idiosyncratic meanings and identified as child coinages. I also cite example innovations from some recent diary studies and articles such as Bowerman (1974), Lord (1979), and my own longitudinal observations. Second, I rely on some data from elicitation studies where we created a situation in which children had to come up with a form for an agent or instrument that performed a specified action (Clark & Hecht, in preparation; Clark, Hecht, & Mulford, in preparation). The third type of data cited is some comprehension data where we looked at when children were able to understand some of the linguistic properties of compounding in English (Clark & Morse, in preparation). Together, these data allow for a preliminary sketch of what forms children acquire when, which forms they rely on initially to carry new meanings, and how productivity, semantic coherence, and regularization affect the course of acquisition. Lastly, I draw on some unpublished data from Berko Gleason[6] on the kinds of complex word forms adults use in their speech to three-year-olds.

Productivity

Where do children get their word forms? The simple answer to this question is, from the adults around them. But this answer does not, by itself, provide any clue to which forms children opt for when they first coin new words. The hypothesis put forward here is that contained in the principle of productivity, that children acquire first the more productive word formation devices of the language. These devices are the ones used more frequently by adults and hence should be more available to children than less productive ones. I will take up two lines of evidence pertinent to this hypothesis. First, I will consider the availablility of complex word forms as represented (a) in adult speech to young children, and (b) in the well-established forms in the three-year-old repertoire. After looking at the productivity of some of these devices, I shall then consider their use through a

comparison of well-established and innovative forms in children's spontaneous speech.

Is there any evidence that adults use complex word forms in talking to young children? One reason for even asking this question is that there is growing evidence that adults "edit" their syntax to some extent, select their vocabulary, and clarify their phonology when talking to young children (Snow & Ferguson, 1977). A priori, it wouldn't be surprising if parents tried not to use complex forms at least to very young children. However, when one considers items in the well-established lexicon, such a possibility becomes rather more remote: one does not stop and analyze the structure of forms like something, exactly, handful, supermarket, or screwdriver. They are simply treated as lexical items on a par with any others. To do an editing job on one's words on the basis of their forms would probably be very difficult, especially with common, everyday expressions. Indeed, Berko Gleason found that parents talking to their three-year-olds in three different settings (playing shop, talking about pictures in a book, and taking a toy car to pieces) used a variety of derivational affixes as well as a number of compound nouns. The parents in these situations also coined some new terms (e.g., storeman) and even used innovations coined by their child (e.g., fixer or fixer-thing for one of the tools used in taking the car apart). In other words, these adults freely used many, if not all, of the word formation processes at their disposal even when talking to children as young as three. They used some innovations themselves in the settings studied, and they freely picked up and used innovations produced by their children. Productive word formation devices, then, should be available to children as models for constructing new words very early in the process of acquisition.

The other source of information about the complex word forms children have been exposed to is the forms found in their well-established vocabulary. For example, the well-established complex forms of agent nominals in the vocabulary of seven three-year-olds were split almost equally between noun + noun compounds and noun or verb base + er forms. Their complex instrument nominals fell into three groups: noun + noun compounds, noun or verb base + er, and verb + noun or noun + verb compounds. These forms are shown in the left-hand column of Table 3. When all their complex nominals were considered, 89% of the complex well-established items had the form of noun + noun compounds.

The predominance of such compounds in children's well-established vocabulary should not be surprising. Compounding is a productive process in English for constructing new nominal forms such as the canary-boy, meaning 'the boy who owns a prize-winning canary,' the umbrella-man, meaning 'the man who walks around with his head concealed by an umbrella,' or the Ferrari-woman, meaning 'the woman who specified in her will that she was to be buried in her Ferrari,' (all adult examples). Innovative compounds are very common in adult speech (Gleitman & Gleitman, 1970; Meys, 1975; Kay & Zimmer, 1976; Downing, 1977; Bauer, 1978).

To take a second example, among the well-established verbs that children use by age three are many denominal verbs, verbs originally derived by conversion from nouns. In the same seven vocabulary studies, such verbs were common. Although the relation between verb and noun may not have been analyzed by the children, in most cases they also had the relevant noun in their repertoires. A major pattern in conversion, then, is well represented in children's well-established lexical items at an early age.

Table 3

Forms Used for Agent and Instrument Nominals in the Spontaneous Speech of Three-Year-Olds

	Idiomatic (n=42)		Innovative (n=14)	
(i) Agents	$\begin{matrix}V\\N\end{matrix}$ + er	50%	$\begin{matrix}V\\N\end{matrix}$ + er	50%
	N + N[a]	45%	N + N	50%
	Idiomatic (n=141)		**Innovative (n=20)**	
(ii) Instruments	V + er	31%	V + er	25%
	N + N	33%	N + N	35%
	$\begin{matrix}V+N\\N+V\end{matrix}$	27%	V + Ø	25%

[a]The second noun in agent nominals was nearly always -man for both idiomatic and innovative forms.

The process of conversion, like compounding, is very productive in English and has been so for several centuries, particularly for the formation of new verbs from nouns (Jespersen, 1942; Marchand, 1969; Adams, 1973). Denominal verbs are rife in the English lexicon, and adults continue to coin such verbs very frequently (see Clark & Clark, 1979, for numerous examples).

Do compounding and conversion predominate in children's lexical innovations? The principle of productivity would predict that the more productive devices--here, the use of noun + noun forms in compounding, and of denominal verbs in conversion--should be acquired early. The evidence available supports the prediction in both cases.

Even very young children construct new compound noun forms for their innovative meanings. And they mainly use the highly productive noun + noun form, like rat-man (for someone who worked with rats in a psychology lab), fire-dog (for a yellow dog found at the site of a local fire), or matchbox-flag (for a matchbox stuck on the end of a pencil and waved), all from two-year-olds. If one takes the innovative nominals coined by the seven children considered earlier, there are clear parallels between their well-established and innovative forms. Consider the data in Table 3. The proportions of two highly productive forms for agent nominals, noun + noun nominals and derived forms with the -er suffix among the innovations, match those found for well-established forms. The parallel is not quite as striking for the instrument nominals, but again the two most frequently used forms among the well-established items were also the most frequent among the innovations.

The most productive devices children used in coining agent and instrument nominals, then, are compounds formed from two (or more) nouns, and derived forms with -er added to a noun or verb base. When all the innovative complex nominals the children coined were counted in, some 80% consisted of noun + noun compounds. (This compares with 89% of their well-established complex nominal forms.) The most productive device for constructing new nominal forms among three-year-olds, then, is compounding, with two or more noun bases.

The main criterion in identifying children's compounds is the stress pattern used--heavier stress on the first, modifying element, and lighter stress on the second, head element.[8] Although few vocabulary studies mentioned the criteria they relied on in identifying certain innovations as noun + noun compounds, diarists like Leopold (1949) discussed stress patterns explicitly and used them as the main criterion for compounds. In my own longitudinal and experimental data as well as in more casual observations of a larger number of children, I have found consistent use of the appropriate stress pattern on all noun + noun compounds.

But does the correct assignment of stress in the production of innovative compounds connote understanding of the modifier-head relation marked by this stress pattern? Robert Morse and I set out to answer this question by asking children to select the appropriate pictures from sets of four as referents of innovative compounds. For example, given the instruction "Show me the mouse-hat," children had to choose one from the following set of four: a hat decorated with a mouse, a hat, a mouse, and a hat decorated with a fish. Erroneous choices allowed us to see whether children were choosing the referent on the basis of word stress (choice of the mouse because of the heavier stress on mouse) or word order (choice of the hat because hat was the last word heard), and whether they understood the modifier relation of mouse- to -hat. It not, they could choose the

hat alone or the hat decorated with a fish. Other picture sets were used to distinguish further between the latter possibilities.

Half the children we tested between the ages of 2;0 and 2;9 consistently chose the appropriate picture (the hat with a mouse on it), and, in another task where the modifier was not pictured together with the head noun referent, the same children consistently opted for the picture designated by the head noun alone, -hat. The other children under three usually chose the referent of the noun carrying the heavier stress, and this was in fact the commonest error at all ages. By three, children chose the appropriate referent to fit the modifier-head relations in compounds over 80% of the time, and by four made virtually no errors. The children in this study also produced a number of noun + noun compounds spontaneously to name the pictures not chosen on each trial. All these compounds carried the appropriate stress pattern. The answer to our question, then, is that young children not only produce compounds with the appropriate stress pattern, but also understand the modifier-head relations exemplified by the word order and primary-tertiary stress. Compounding with noun bases is truly productive for children acquiring English as young as age two.

Young children also rely on conversion. And, just as adults do, they use it most commonly in the coining of new verbs from nouns. Some typical examples of this were listed in Table 1 (see also Clark, in press). And young children rarely, if ever, use such suffixes as -ize, -ify, or -ate-- suffixes that are all less productive than conversion. Moreover, although children mainly use conversion to form new verbs from nouns, they also rely on it to form new verbs from adjectives and prepositions, as in the following examples:

(i) Adjective to verb:

Child aged 2;6, scribbling on a piece of paper: I'm darking the sky.
Child aged 2;11, trying to smooth some paper: How would you flat it?
Child aged 3;0, holding up a pencil: How do you sharp this?

(ii) Preposition to verb:

Child aged 3;0, watching her mother use the eggbeater: I wanta ...wanta...round it.
Child aged 3;3, pushing on her sister's flexed knee: Down your little knee!

These examples, like those in Table 1, of the construction of new verb forms by conversion are typical (Bowerman, 1974; Lord, 1979; Clark, in press). Lastly, as Table 3 indicated, children also use conversion to form nouns from verbs, as in a rub (meaning 'an eraser') or a stir (meaning 'a spoon'). But, like adults, children rely on conversion mainly to form new verbs. So here too children conform to the principle of productivity.

Semantic Coherence and Regularization

Productivity is not the only factor that affects children's acquisition of word formation. At least two other principles also play a role: semantic coherence and regularization. Children first look for a device that conveys their meaning clearly and then rely on that device (until they learn otherwise) to convey that meaning wherever needed. This reliance on semantic coherence in turn allows children to

organize their lexicon into paradigms of words with like structure and meaning, akin to paradigms based on inflectional patterns.

How do productivity, semantic coherence, and regularization interact? Since the most productive device may not be the most transparent, during certain stages of acquisition, semantic coherence may take precedence over productivity. For example, the -er suffix for agency is less transparent than a compound with -man in second position, since the noun man clearly denotes the kind of individual carrying out some action. Garden-man or plant-man, for the three-year-old, are more transparent than gardener. The priority of productivity, then, will depend on how much children already know. Where they know relatively little, semantic coherence will play a more important role than where they have already acquired the conventional adult device for forming new words with a particular meaning. In the case of agent nouns, younger children might therefore rely rather more on compounding than older ones who have correctly analyzed the -er suffix as the conventional (and most productive) device for forming new agent nouns.

These predictions were supported by the kinds of agent nouns children coin in an elicitation task. Barbara Hecht and I solicited innovative 'names' from children aged 3;0 to 6;0 by means of a word game with a deck of cards. The cards were visible initially only to the experimenter, who described each card and asked for a name for the agent pictured. The descriptions all contained verbs familiar to children this age. The percentages of different agent noun forms produced by different age groups are shown in Table 4.

Table 4

Percentage of Each Agent Form Elicited by Age
(Based on Clark & Hecht, in preparation)

Age:	Word Form: V + er	Compound[a]	Suppletive[b]	No Response
3;0-3;8	56	23	3	18
3;9-4;5	90	6	1	3
4;6-5;2	76	8	5	11
5;3-6;0	93	3	2	2

[a]Most of the compounds elicited in this study combined a verb and noun stem, but some children also constructed a few noun + noun forms.

[b]We called 'suppletive' those responses that were labels for some other category known to the children, e.g., clown given in response to "someone who smiles" instead of smile-man or smiler.

As predicted, the youngest children produced a fair number of compound forms while the oldest produced hardly any. Overall, the terms children coined for agents showed a steady increase with age in the use of the -er suffix added to the verb that had been used to describe the actions of the agent in question (from 56% for the youngest up to 93% for the oldest). At the same time, the number of compounds used decreased, with the youngest group using them 23% of the time, versus the three older groups using them only 6% of the time. Both these trends conform to the predictions about the relative status of semantic coherence and productivity during the earliest stages of acquiring knowledge about word formation. While semantic coherence is important at first--all the compounds children coined had -man, -woman, -person, or -people as the second element--productivity takes over once children acquire the conventional device for expressing a meaning like agency.

Another, small, category of responses was suppletive, where children would supply the label for a familiar category that they appeared to equate with the description of the agent given by the experimenter. For example, 'a person who gives things' would sometimes elicit Santa Claus from the younger children rather than give-man, present-man, or giver--the forms offered otherwise, or 'a person who smiles at people' would sometimes elicit clown rather than smile-man or smiler. This type of response was fairly rare for agents, averaging only 3% overall. Lastly, there were a number of 'Don't know's' or no response at all, ranging from 18% for the youngest children to a mere 2% for the oldest.

Using the same technique, we also looked at the kinds of nouns children coined for instruments. The pattern of word forms used, as shown in Table 5, differed in certain respects from that found for innovative agent nouns. Instead of constructing compound forms, the younger children used a large number of suppletive responses. Terms like shovel or spade were offered for 'a thing used to dig with' instead of dig-thing or digger. The latter was the commonest response for older children and adults. Or terms like scissors or knife were offered for 'a thing used to cut with' instead of cut-thing, cut-machine, or cutter. Again, the latter was the commonest response among the older children and adults, an indication that productivity by then took precedence over semantic coherence. Although the number of suppletive responses decreased with age, the oldest children still used them 11% of the time. One possible reason for this reliance on suppletive responses for instruments is that children's vocabulary for instruments is much more elaborated, by age three even, than their vocabulary for agents.[9] And if available words take precedence over innovations, children should use what we have called suppletive responses.

Table 5

Percentage of Each Instrument Form Elicited by Age
(Based on Clark & Hecht, in preparation)

Age:	Word Form: V + er	Compound	Suppletive	No Response
3;0-3;8	41	7	33	18
3;9-4;5	72	3	16	9
4;6-5;2	71	5	15	9
5;3-6;0	72	8	11	8

One consequence of children's looking for devices that express their intended meanings clearly is that they use those devices wherever those particular meanings are in question. This leads them to regularize their lexicon much as they regularize inflections. Until they learn otherwise, when they form new words, they rely on one particular device to convey a particular meaning, e.g., the noun -man in compounds like plant-man, fire-man, sweep-man, and hit-man. In other words, children set up lexical paradigms, acting as if the lexicon were much more regular than it is in fact. Even when they reach the stage of identifying the most productive device for a particular meaning, the -er suffix for agency, say, they still have to learn many exceptions in the well-established vocabulary that do not fall into tidy paradigms, e.g., bicyclist rather than 'bicycler,' or librarian rather than 'liberarier' alongside farmer, teacher, trucker, etc.

In our elicitations of agent and instrument forms from young children, we have found considerable consistency in the choices of device to convey agency or instrumentality. Among the younger children, agency was usually indicated by a noun like -man or by the -er suffix, and each child tended to stick with a single device for all his innovations. A few of the younger children used a double marking for agency, adding the -er suffix to the verb base and then forming a compound with -man as in hitter-man or kicker-man (see Table 2). These children were also very consistent in the forms they constructed. Older children always used the most productive device, the -er suffix. The coining of instrument terms showed a similar consistency in the reliance on various devices. Some of the younger children used compound forms with -thing or -machine as the second element; a few used conversion or zero derivation, taking the verb base and making it into a noun with a preceding article, and one or two used the -er suffix. As in the case of agents, more of the older children relied on the productive device, the suffix -er, and used it consistently in constructing new instrument noun forms (Clark & Hecht, in preparation; Clark, Hecht, & Mulford, in preparation).

Some children may start out by picking on the productive device to convey such notions as agency, while others may pick up some alternative that to them appears more transparent, or at least offers a straightforward meaning-to-form match. Until they learn otherwise, they will use that device when constructing new word forms for meanings that belong in the same set or paradigm--here, other agent terms. Semantic coherence, then, has to be considered from the child's perspective and not all children will necessarily pick on the same device to express the same meaning. Once chosen, though, that device will be the one used in constructing further, related terms. Regularization of forms in the lexicon follows from identification of a consistent meaning with some word formation device. Both semantic coherence and regularization, therefore, play important roles in the child's acquisition of knowlege about forming new words.

Conclusion

In this brief paper, I have sketched some hypotheses and issues that arise in the study of children's knowledge of word formation. I have distinguished the meanings of their lexical innovations from the forms they rely on to convey these meanings, even though, in fact, the two--meaning and form-- are tightly linked. Children's innovative meanings are often contextual. They require knowledge of the context, and what mutual knowledge that would entail, for the addressee to arrive at the child speaker's intended meaning. This is often achieved by default, since children tend to limit their early conversations to the here-and-now, thus

making it possible for the addressee to use the context even when the speaker is not taking it explicitly into account. Learning to assess what the addressee does and doesn't know is only one of the factors children must eventually attend to as they acquire the conventions on innovation.

Lexical innovations require word forms for their expression. These seem to be acquired in a predictable order, with forms that are productive in the language--and hence more readily available--being mastered earlier. In addition to the principle of productivity, children also attend to the semantic coherence of the new forms they are constructing, and they regularize the lexical paradigms that result, for instance, choosing a single form for all agent nouns. But the three principles outlined here--productivity, semantic coherence, and regularization--are only some of those that operate in the acquisition of the word formation rules for a language.

To study word formation, and children's acquisition of word formation rules, one has to take into account both the meanings of lexical innovations and the forms used to convey them. The present paper represents a preliminary step towards that goal.

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Footnotes

1. Even where children are apparently using synonyms, it seems unwise to assume sameness of meaning. For example, there is a difference, for adults, between such "synonymous" expressions as sweep the dust into the pan and make the dust go into the pan. The first expression clearly implicates the use of a particular instrument in the action while the second doesn't. Such contrasts between lexicalized causatives (like sweep) and periphrastic causatives, to take but one example, are the rule rather than the exception (cf. Shibatani, 1976; McCawley, 1978). But when children produce lexicalized and periphrastic verb forms side by side, investigators like Bowerman (1974) have assumed synonymy. However, the assumption of contrast by children in such studies as Carey's (1978) and Dockrell's (1979) suggests that careful checking to make sure children really do think two expressions are synonymous is needed first. An alternative interpretation of children's uses of apparent synonyms is that they are actually contrasting the meanings of different expressions, and the second of the two uttered is a repair to the initial communication. The norm, for children and adults alike, seems to be one of contrast in meaning.

2. The hyphen between two nouns or a verb and noun indicates use of compound stress by the child, i.e., primary stress on the first element and tertiary stress on the second. I will take up the question of the correct assignment of compound stress and word-order in the second part of this paper (see also Clark & Morse, in preparation).

3. The stress patterns for both agent and instrument compounds were always correct. In the nominals containing a verb base, however, the younger children made many mistakes on the order of the elements, failing, for instance, to invert verb and direct object, as in puller-wagon for 'wagon-puller,' or cut-grass for 'grass-cut' or 'grass-cutter' (see Clark, Hecht, & Mulford, in preparation).

4. Even in such compositional cases, the interpretation is not always as simple as these examples would suggest. A tourist advertisement, for example, talks of a particular lake in California being "boatable," meaning that it is possible to use a motor- or sail-boat on it. And a recent newspaper article talked about different types of people being "labelable," meaning 'easily pigeonholed.' Both these innovations, of course, combine a noun base with -able, rather than an adjective or verb base.

5. To farmer, with a sense that contrasts with to farm, namely 'to play at being a farmer' or 'to act the (gentleman) farmer,' is, of course, quite a legitimate innovation. This is because the meanings in question do contrast with each other.

6. Jean Berko Gleason, personal communication 6/78 (unpublished data).

7. Among them were adverbial -ly, diminutive -y (-ie), agentive and instrumental -er, comparative -er, nominal -ness, and the negative verb prefix un-.

8. Even at the two word stage, use of this stress pattern would distinguish compounds used to name an entity from two word utterances used to predicate a property of something. In the latter, the heavier stress normally falls on the second, not the first, element. Once beyond the two word stage,

other criteria can also be applied: use of an article preceding the compound, placement of the compound immediately before the verb (the subject), or immediately after the verb (the direct object), and so on.

9. One possible explanation for the difference in the number of suppletive forms offered for instrument nouns compared to agents is the following: Any particular human being can do a large number of different actions, with the particular action specified by the verb used in the utterance describing agent and action. Most instruments, however, are tied to a single action in which their role as instrument is very specific. Instruments therefore tend to have more precise labels that are often unrelated morphologically to the verb denoting the usual action the instrument is connected with. The generality of nouns for agents (man, woman, child, human being, or proper names of individuals) therefore constrasts with the specificity of nouns for instruments (a spade is normally only used for digging, scissors only for cutting, and so on). Children, then, may have a larger stock of ready-made terms for instruments and rely on that, where for agents they look earlier for some conventional device that will single out an agent as the agent of a particular action.

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